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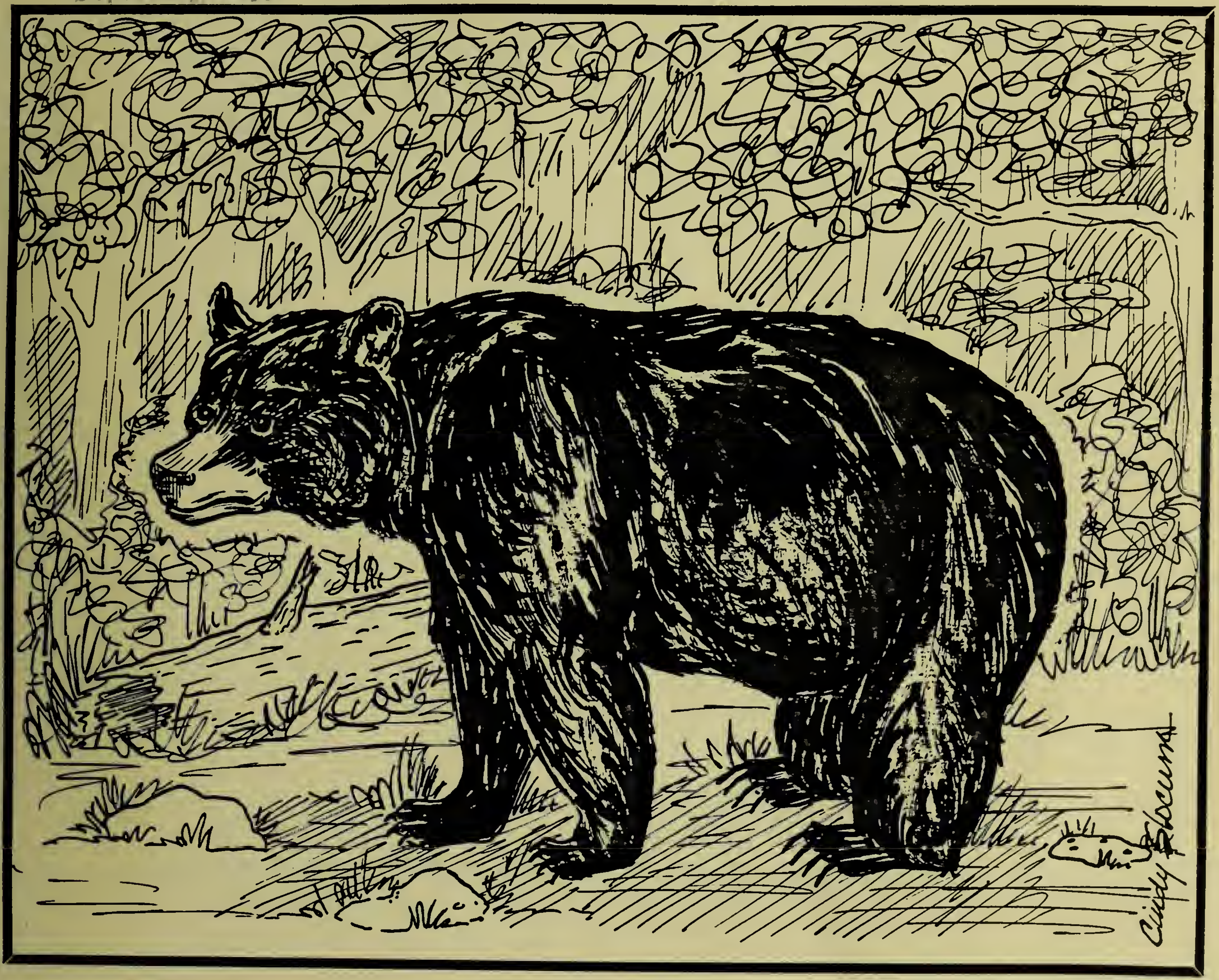
BLACK BEAR
DAMAGE & CONTROL
IN MASSACHUSETTS



Massachusetts Division of Fisheries & Wildlife

BLACK BEAR DAMAGE AND CONTROL
IN MASSACHUSETTS

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MASSACHUSETTS DIVISION OF FISHERIES AND WILDLIFE
WESTBOROUGH, MASS.

1985

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Introduction:

Black bears are the only bear species found in the eastern United States. They are large, wide-ranging, relatively long-lived, intelligent animals with the capacity to adapt to diverse habitats and environmental changes. They also have one of the lowest reproductive rates of any North American mammal. Due to their adaptability in ranges and food habits, and to their size and generally dominant status, bears have frequently been regarded by man as nuisances or competitors and their numbers reduced by vigorous control measures and associated habitat changes. More recently, black bears have been treated as big game animals, valued for recreational hunting during limited open seasons. Human reactions to bears are also often colored by our cultural background and exposure to distorted presentations in the media, resulting in attitudes ranging from irrational fear to emotional protectionism. All these responses complicate the biological and ecological aspects of black bear management programs. Such programs must address bear biology and ecology, habitat conservation, and man-bear interactions. Subsequently, these several aspects must be integrated into a balanced program of consumptive and non-consumptive measures designed to manage bear populations at levels compatible with the available habitat and human interests.

A summary of black bear biology and ecology is included in this leaflet, since it is important to know how bears live and behave and how they fit into the environment in order to understand why bear damage occurs and how it can be minimized or prevented.

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BLACK BEAR BIOLOGY AND ECOLOGY

Description:

Black bears are large-bodied, with a small narrow head, powerful limbs and small ears. Although brown-furred black bears are common in the West, those in the Northeast are almost entirely black with the exception of a brown muzzle and, occasionally, a white chest patch. Adult females average 100-180 pounds and adult males 150-300. Sometimes, males may attain larger sizes; the record for a Massachusetts bear is 467 pounds dressed weight (above 550 pounds live weight). Black bears have five toes with well-developed claws on both front and hind feet and have teeth adapted for feeding on a mixed plant and animal diet.

Range:

Black bears occur throughout much of Alaska, Canada and the western and north central United States. In the East, they occur along the Appalachians from Maine to Florida. In Massachusetts, bears are found in suitable habitat everywhere west of the Connecticut River and, in lesser densities, east of the Connecticut from Franklin County through central Worcester County.

Habitat:

Typical black bear habitat is characterized by remote terrain, thick understory vegetation, and an abundance of seasonal fruits, berries, and nut crops. Bears readily adapt to human presence; however, man's intolerance may result in the reduction of bear populations in heavily developed areas. Wetlands are of prime importance to bears in Massachusetts, especially in spring and early summer. Abandoned fields, clearcuts, and berry patches are favored in the summer and nut-producing hardwood stands are important in autumn.

Food Habits:

Black bears are considered to be opportunistic and omnivorous, but plant foods are the mainstay of their diet. Skunk cabbage, buds, grasses, and remnant nut crops are important spring foods in Massachusetts, with grasses, sedges, tubers, and various fruits and berries predominant in summer. Nut crops (especially acorns, hickories, and beechnuts) are preferred fall foods. Ants and other insects are commonly taken in summer. Depredations, particularly on bees and agricultural crops, are most likely to occur in spring (when other foods are scarce), or in late summer and fall, especially during poor berry and nut years.

Reproduction:

Females become sexually mature at three-five years, generally breeding every other year thereafter. Mating takes place in late June and July, but embryonic development does not begin until November or December. Two to four cubs, weighing about one-half pound each, are born in late January or early February during the winter denning period. The young remain with the female for about 16 months, denning with her again the second winter and dispersing from the family group the following spring. Mortality may be higher among dispersing young than in other age groups, due to inexperience, growth requirements, movement to unfamiliar areas, and competition. Because of the relatively low reproductive potential of bears, changes in breeding age, litter size, and frequency of breeding resulting from food shortages or stress can seriously affect the stability of bear populations.

Home Range, Activities and Movements:

Black bear home ranges do not represent exclusive territories which are defended against other bears, but rather are familiar use areas in which the bear spends most or all of its time during the course of the year. Considerable overlap in ranges among bears of different sexes and ages may occur, but the bears usually avoid contact with each other. Home ranges for adult males in Massachusetts average 120 square miles, for adult females 11 square miles, for sub-adults (two-three years of age) 13 square miles, and for yearlings (one-two years of age) 5 square miles. After family breakup, yearlings generally remain within the mother's home range until they become sub-adults, at which time they form their own home ranges. Sub-adult females usually just expand their yearling range, but sub-adult males often move substantial distances (12-60 miles) and establish ranges well outside their rearing areas. These dispersing young males sometimes wander into suburban areas, causing concern among residents unfamiliar with bear habits and behavior.

Dates of den emergence are variable, but most bears in Massachusetts usually leave the den in early to mid-April. Adult males usually emerge first and females with newborn cubs last. Available food supply, rather than weather, is probably the most important influence on den emergence. Bears may be active throughout the daylight hours, but are particularly so at dawn and dusk in summer and at dusk in spring and fall. Bears in Massachusetts are rarely active at night (except during breeding and in some depredation situations). Bear movements are usually limited in spring, but, by summer, breeding males may travel widely. In fall, bear activities decline and their travels are limited to the areas near productive food sources. Denning dates range from early November to early December and are related to fall food supply. Denning occurs early when foods are scarce and later when foods are abundant.

Legal Status:

Black bears are regulated as a game species in Massachusetts and may be hunted by permit only during a limited open season. Trapping of bears is not allowed in the state. Current hunting season dates are listed in the pamphlet "Abstracts of the Massachusetts Fish and Wildlife Laws", available from city and town clerks. The complete text of the regulations may be found in the Code of Massachusetts Regulations, 321 CMR 3.02(1).

Under certain circumstances, landowners, tenants, members of their immediate families, or persons permanently employed by them may exercise direct control against bears damaging their property. Persons suffering damage are urged to contact their local Division of Fisheries and Wildlife office prior to instituting control measures. When such contact is made immediately after the damage, or beforehand in situations where damage is anticipated, appropriate control or preventative measures can be recommended to lessen the problem. When authorized, direct control may only be employed in accordance with provisions of Chapter 131, Section 37, Massachusetts General Laws.

DAMAGE PREVENTION AND CONTROL

Black bears are adaptable creatures and may be implicated in a wide variety of damage and nuisance situations, including depredations on crops, bees, and livestock; scarring and bark stripping on timber; raiding of campgrounds and panhandling from campers; and confrontations with humans. The most common problems in Massachusetts include beehive damage and raiding of cornfields, although some other problems occur infrequently.

Damage Identification:

The substantial damage inflicted on beehives by marauding bears is unmistakable and bear tracks and droppings often provide further evidence. Damage to corn and other crops, however, may be confused with damage by raccoons, porcupines, or coyotes. Bears generally select a site in the field to their liking, pull several stalks toward them and eat a few of the ears, then move on and repeat the process. More corn may be damaged than is eaten and the bending of the stalk hinders their cutting for silage, in addition to the loss of the ears.

Damage to livestock usually involves sheep, goats, or pigs, and is usually caused by adult males. Normally, bears kill by biting the neck or shoulders of their prey, but may occasionally break the neck or back with blows from their paws. Claw marks on the neck, back, and shoulders of larger animals are common. The udder of lactating female prey is favored, but most bears prefer meat to entrails. Some bears will feed first on the neck and shoulders where the first injury was inflicted. Bears will often strip back and reverse the skin of larger prey, leaving the skin and skeleton relatively intact. Prey may often be dragged or carried away from the open but usually will not be covered with leaves or debris.

As mentioned above, the Division recommends that persons incurring bear damage promptly contact the nearest Division District office so that the staff may assess the complaint and provide further recommendations. Thorough and accurate evaluation of the extent of the problem will assist the Division in integrating damage prevention into long-term bear management programs and will provide documentation for the landowner to remove the bear in circumstances where other measures are inappropriate or ineffective.

Preventive Measures:

The measures by which bear damage may be alleviated vary with the nature and severity of the problem, but may include both preventive actions and control measures applied after the damage has occurred. Wherever possible, the most effective, long-lasting results will be gained by damage prevention rather than reacting after the fact. Bears can learn rapidly and if their activities are "rewarded" by food, barriers or harassment will be substantially less effective than if the bear was initially excluded from the food source. As in any problem wildlife situation, no technique will provide absolute security from depredations; however, certain measures initiated in a timely manner, properly constructed and well-maintained, and applied with an understanding of bear habits and behavior can greatly reduce the extent and severity of bear damage. The various types of measures which can be used and their advantages and disadvantages are discussed below.

Exclusion:

The most effective means of preventing bear damage to beehives is by the use of an electric fence. Fences are best installed prior to the onset of damage as once a bear has raided a hive it may be very difficult to exclude it in the future despite the use of fences and other deterrents. Tests in Florida have shown that unfenced beeyards have a 70 percent chance of damage than unfenced ones. Properly fenced and maintained beeyards may provide 80-85 percent protection against losses, far better than with any other measure. No other single technique can effect the degree of security and effectiveness that can be provided by electric fencing.

The design, size, permanency, and cost of electric fencing for beeyard protection will vary with the size of the colony, its location and accessibility, land ownership, and other factors. In all instances, however, it is essential that the fence be carefully constructed and well-maintained. Short circuits, drained batteries, loosely emplaced posts, poorly spaced hot wires, overgrown vegetation, and other deficiencies substantially decrease or eliminate fence effectiveness. Bears may test fences periodically and are quick to enter if electrification has failed.

Detailed plans for constructing permanent or semi-permanent electric fences are available from Division of Fisheries and Wildlife offices. The exact design needed will depend on the particular situation and the number of hives to be protected. Portable fences with PVC pipe posts, flexible 1/16-inch wire rope, and 12-volt chargers may be appropriate for hobbysists with small numbers of hives or in situations where a hive is rented out for crop pollination.

Electric fences are also appropriate for excluding bears from orchards or cornfields. A ten-acre field can be fenced for about 25 cents per linear foot, excluding installation costs. A newly-designed seven-strand slanted fence has been particularly successful in reducing deer and bear damage in New York.

Heavy gauge woven wire fencing eight feet high with sturdy support posts topped with two barbed wires on brackets at 250° will provide an effective mechanical barrier when electricity is unavailable.

Hive-stands, or platforms, have been used successfully in the southern states. The platform is erected 8-12 feet above ground on old utility poles or other posts, with a two-foot overhang and metal sheathing on the poles to eliminate climbing.

Commercial beekeepers in British Columbia have protected hives by encasing a cluster of colonies in two layers of 6-inch mesh hogwire fastened securely to stakes deeply set alongside the hives and wired together at the top. Similar wire baskets can be prefabricated in variable sizes and wired to a pallet holding the hives. Bears can jostle, but not seriously damage, these units and they can be hoisted atop a truck for transport elsewhere with a bucket-equipped tractor.

Cultural Methods:

Placement of hives and crops in open areas at considerable distances from brushy cover will reduce the chance of depredations. Black bears do not like to venture too far out in the open. Beware of gullies, hedgerows, and other terrain features which provide cover for bears to sneak up to the fields or hives.

Garbage, dead livestock, the remains of butchered animals, and food scraps should be deeply buried, incinerated, or trucked away, rather than discarded in nearby woodlands. Carrion left near your croplands is an invitation for bears to cause damage.

Foodstuff at campgrounds and seasonal cabins should be securely stored or removed. Hang food containers on rope between trees or in the trunk of your car. Do not keep food in your tent. Keep your campground sanitary and avoid saturating your tent, your clothing, and yourself with food odors. Avoid perfumes and other odors which may attract curious bears.

Strictly obey camp and park regulations against feeding bears or other wildlife, particularly at large park outside Massachusetts where problem bears may be a chronic nuisance. When camping, avoid setting up near dumps, garbage bins, or unsanitary campers.

Frightening:

Black bears can temporarily be repelled by loud music, propane cannons, gunfire, barking dogs, scarecrows, or spotlights, but they will readily become accustomed to such noise or objects and may become very tolerant of human presence. Frightening is most useful as a stop-gap measure to provide temporary relief while more effective measures are being prepared. There are no repellents or chemical sprays which are legal or effective in deterring black bear depredations.

Some sportsmen may be willing to chase bears with hunting dogs in order to assist farmers with bear damage. This may provide brief respite but most bears will readily return after hounding has ceased.

Hand-held chemical sprays containing capsaicin may be useful repellents for deterring black bears under certain conditions. However, it is uncertain and dangerous to presume that such sprays would deter all bears under all circumstances. Possession of these devices may also require a special permit.

Aversive Conditioning:

Experiments have been conducted to alleviate beehive damage by placing gelatin capsules containing the emetic compound lithium chloride (LiCl) in brood-comb or honey bait. The sickening effects of the treated bait were to cause the animals to avoid apiaries in the future. Results have been mixed, with deterrence varying from a few days to several months. Individual bears apparently have different tolerances. Treatment must also be readministered as the bear's memory fails, and damage could occur by bears not conditioned.

In the West, aversive conditioning has been tried by capturing, drugging, and shocking bears. Initially, there was some success; however, in addition to the disadvantages of chemical conditioning, time, expense, and ethical considerations affect the usefulness of this technique.

The most effective negative conditioning is to prevent bears from getting what they want (almost always food) in the first place. If bears visit a site and consistently find no food, and are concurrently frightened or harassed and painfully but non-injuriously stimulated (as by an electric fence), they will soon learn to avoid that site. However, it will be necessary to keep up your guard. Other bears may move in, or the original bears may return after their bad experiences have been forgotten.

Live-Trapping and Release:

In some states and provinces, depredating bears are live-trapped by authorized officials, transported to a distant area, and released. Such actions are labor-intensive, presuppose that the bears will not cause damage at the release site, and require transport for substantial distances. Studies have shown that about 80 percent of bears transported up to 40 miles return to their home range, with returns from up to 140 miles recorded in rare instances. In Massachusetts, the relatively small amount of bear habitat prohibits translocating bears to an area from which they cannot return. Accordingly, the Division will not attempt or allow translocations except in extremely rare non-damage situations where homing is not a concern.

Lethal Control:

The Division of Fisheries and Wildlife encourages a balanced approach to wildlife management, with animal populations regulated at such levels and in such a manner as to maximize wildlife numbers, distribution, and diversity at levels compatible with human interests and activities. In most situations, the Division strongly recommends preventive measures as being the most effective in reducing damage and the least likely to threaten the viability of bear populations. Different situations require different treatments, however, and lethal control can be appropriate in situations where preventive measures have failed or cannot be applied, or where human life and safety are threatened.

When authorized, lethal control may be exercised by those persons and under those conditions specified in Chapter 131, Section 37, of the General Laws. In most instances, shooting is the only lethal control which may be used. Bear trapping, using culvert or cable traps, will be employed by the Division only in very specialized circumstances. Shooting must be done in accordance with all applicable laws and regulations relative to the discharge of firearms and with due concern for public safety. Cartridges equal to or more powerful than the .308 Winchester with 150-grain soft point bullet are usually effective on black bears. Those weapons recommended by the U. S. Forest Service for best protection against bears at close range include the .458 Winchester Magnum, .375 H & H Magnum, .338 Winchester Magnum, and .30-06. The 12-gauge shotgun using one-ounce rifled slugs can be effective at short range. Firearms should be used only by skilled, experienced shooters. A backup shooter is recommended.

Sport hunting can be used to alleviate depredations. This is most effective when the damage occurs during or near the open season. Persons with damage problems are encouraged to allow bear hunters to hunt their land. However, hunting should not be viewed as a substitute for preventive measures. Reports of damage can be reported to a Division District office so that hunters can be directed to complaint areas.

Confrontations with Humans:

Our social and cultural background often influences our attitudes and reactions towards bears. Despite these perceptions, bears are neither pets nor monsters, but powerful, adaptable, rapid-learning wild animals. Bears can, and sometimes do, inflict serious physical injury on humans, either in response to actual or perceived threats, in attempts to acquire food, or in the course of asserting dominance.

Many, if not most, black-bear-caused injuries occur in large parks or sanctuaries where they have developed a tolerance for close interactions with humans. Encounters are less likely to occur in situations where bears have learned to fear man. Reinforcement of this fear may be a necessary long-term approach to injury reduction, particularly in park situations, but may also reduce the opportunity for people to see wild bears. Attacks in wilderness situations are very rare, but have happened in some areas of Canada, Alaska, and the western United States. In Massachusetts, encounters with bears are rare and no known injuries have occurred in this century.

Most bear-caused injuries can be prevented by avoiding close contact with bears. In particular, bears should not be fed or allowed to feed in circumstances where they can associate the food with humans. This includes the personal and campground sanitation measures suggested previously. Be careful when cleaning or carrying fish and game afield in bear habitat, particularly in times of natural food shortages.

Avoid approaching bears which seem tame. Do not approach bears with cubs, or cubs which seem to be alone. Female bears may move off a short distance from their cubs, but can return rapidly and aggressively if the cubs are threatened. Wild animals do not make good pets and it is illegal to take them from the wild.

Be alert when berry-picking or harvesting nuts or other wild crops. Make your presence known to bears which may also be feeding there. The animal's usual reaction will be to flee, but some may feel threatened if you approach them too closely too quickly.

DIVISION OF FISHERIES AND WILDLIFE OFFICES:

Western Wildlife District, 400 Hubbard Avenue, Pittsfield,
MA 01201, (413-447-9789)

Connecticut Valley Wildlife District, East Street,
Belchertown, MA 01007 (413-323-7632)

Central Wildlife District, Temple Street, West Boylston,
MA 01583, (617-835-3607)

Northeast Wildlife District, Harris Street, Acton, MA
01720 (617-263-4347)

Southeast Wildlife District, RFD #3, Bournedale Road,
Buzzards Bay, MA 02532 (617-759-3406)

Field Headquarters, off Oak Street, Westboro, MA 01581
(617-366-4470/4479)

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